VME Intensity Monitor - Feature #11104

Add ScaleFilter and Accessors

12/08/2015 06:33 AM - Roger Tokarek

Status:	Closed	**Start date:**	12/07/2015
Priority:	Normal	**Due date:**	12/08/2015
Assignee:	Roger Tokarek	**% Done:**	100%
Category:		**Estimated time:**	10.00 hours
Target version:		**Spent time:**	12.10 hours

Description

Create a class ScaleFactor that modifies a passed value according to a scale factor. This class inherits from AbstractFdilter and is part of the filter chain.

Requirements:

- Scale factor is of type double.
- Scale factor is nominally set in the startup script.
- Provide an Acnet setter for the scale factor.

History

#1 - 12/08/2015 07:36 AM - Roger Tokarek

- % Done changed from 20 to 30

Step 1 Test startup script scale factor input formats: See choices considered in Log 2015 Dec 8
Confirming can pass the scale factor as a C-style string to be converted to type double.

```
double VMEInt::testString( char* scaleFactor ):
```

#2 - 12/18/2015 03:25 PM - Roger Tokarek

- Status changed from New to Resolved

- Estimated time changed from 5.00 h to 10.00 h

Added ScaleFilter class.

Uses the D80 "common xform" template: x' = (c1 * x/c2) + c3

ScaleFilter is enabled in the startup script with (for example)

vmeintFilterScaleFactorCreate(0, "2.0", "1.0", "1000"); which calls

```
extern "C" int vmeintFilterScaleFactorCreate( unsigned int chainId, char* c1Str, char* c2Str, char* c3Str );
```

The C-style strings are converted to doubles with sscanf(c1Str, "%lf", &c1) within the function.

The scaling applied with this example is

x' = (2.0 * x/1.0) + 1000.0

The **chainId** identifies which ChainFilter the scale filter belongs to. If more than one ScaleFilter is required in the chain use additional vmeintFilterScaleFactorCreate() commands. The Acnet device ssdnCh field identifies any one filter in the chain. That is if applying ScaleFilter 3 times in one chain and want an Acnet read-out of the 2nd filter, set the ssdnCh to 1 and set the misc field to 0001. If the misc field is 0000, Acnet will see the calculated result of the **last** filter in the chain (in this case the 3rd).

By way of example:

```
vmeintFilterChainCreate 0, 0
vmeintFilterScaleFactorCreate 0, "1", "1.0", "0"
vmeintFilterScaleFactorCreate 0, "2", ".5", "1000.5"
 .
 .
 .
vmeintStart
```

```
vmeintFilterChainACNETCreate 0xf, 0
```

0xf is the ssdn Device ID, numbered in ACNETInterface.h.

#3 - 12/18/2015 03:54 PM - Roger Tokarek

- % Done changed from 30 to 100

Complete, tested.

#4 - 10/13/2016 09:33 AM - Elliott McCrory

- Status changed from Resolved to Closed